Amendments to the Claims:

1. (Currently Amended) A data storage structure that stores a plurality of sub-networks, wherein each sub-network performs a set of output functions~~, wherein each sub-network~~ and comprises a set of circuit elements ~~and~~, at least some of the sub-networks ~~comprise~~ comprising a first circuit having a first output outside the sub-network and a second circuit having a second output outside the sub-network, wherein the first circuit receives a direct or indirect input from the second circuit, wherein each sub-network is stored based on a set of indices derived from the set of output functions performed by the sub-network, the set of indices being used to retrieve the sub-network from the data storage structure.

2. (Currently Amended) A data storage structure that stores a plurality of sub-networks, wherein each sub-network performs a set of output functions~~, wherein each sub-network~~ and comprises a set of circuit elements ~~and~~, at least some of the sub-networks ~~comprise~~ comprising a first circuit having a first output outside the sub-network and a second circuit having a second output outside the sub-network, wherein the first circuit receives a direct or indirect input from the second circuit, wherein the data storage structure stores each sub-network based on a parameter derived from the set of output functions of the sub-network, the parameter being used to retrieve the sub-network from the data storage structure.

3. (Original) The data storage structure of claim 2, wherein the parameter for each sub-network is a set of indices for storing the sub-network in the storage structure, wherein the set of indices includes an index for each function performed by the sub-network.

4. (Original) The data storage structure of claim 3, wherein the indices are numerical indices.

5. (Original) The data storage structure of claim 3, wherein the storage structure is a relational database, and the set of indices are indices into the relational database.

6. (Original) The data storage structure of claim 3, wherein the set of indices for each sub-network includes a primary index and a set of secondary indices.

7. (Original) The data storage structure of claim 6, wherein the set of secondary indices for a sub-network that only performs one function is empty.

8. (Original) The data storage structure of claim 6, wherein each sub-network receives a set of inputs, and each sub-network's primary index is the index derived from a pivot function of the sub-network that depends on all the inputs in the sub-network's set of inputs.

9. (Original) The data storage structure of claim 3, wherein each sub-network's set of indices specify the location where the sub-network is stored in the data storage structure.

10. (Previously Presented) The data storage structure of claim 9, wherein the data storage structure stores each sub-network in terms of

(i) a graph that represents the topology of the set of circuit elements of each sub-network, wherein the graph includes a node for each circuit element of the sub-network,

(ii) a set of local functions that includes a local function for each node of the graph,

wherein the data storage structure stores, for each sub-network, an identifier that specifies the locations that store the set of local functions and the graph of the sub-network,

wherein each sub-network's set of indices is associated with the identifier for the sub-network.

11. (Original) The data storage structure of claim 10, wherein each sub-network's identifier includes a graph index and a set of function indices, wherein, for each sub-network, the graph index identifies the storage location of the graph for the sub-network, and each function index identifies the storage location of a local function of the sub-network.

12. (Currently Amended) A sub-network record management system comprising:

a) a data storage structure that stores a plurality of sub-networks, wherein each sub-network performs a set of output functions~~, wherein each sub-network~~ and comprises a set of circuit elements ~~and~~, at least some of the sub-networks ~~comprise~~ comprising a first circuit having a first output outside the sub-network and a second circuit having a second output outside the sub-network, wherein the first circuit receives a direct or indirect input from the second circuit, wherein the data storage structure stores each sub-network based on a parameter derived

from the set of output functions of the sub-network, the parameter being used to retrieve the sub-network from the data storage structure; and

b) a data access manager that identifies and retrieves sub-networks from the data storage structure.

13. (Original) The record management system of claim 12, wherein when the data access manager receives a parameter, the manager searches the data storage structure for sub-networks that are stored based on the received parameter, and if the manager finds a sub-network that is stored based on the received parameter, the manager retrieves the sub-network.

14. (Original) The record management system of claim 13, wherein the parameter for each sub-network is a set of indices for storing the sub-network in the storage structure, wherein the set of indices includes an index for each function performed by the sub-network.

15. (Original) The record management system of claim 14, wherein the indices are numerical indices.

16. (Original) The record management system of claim 14, wherein the storage structure is a relational database, and the set of indices are indices into the relational database.

17. (Original) The record management system of claim 13, wherein the set of indices for each sub-network includes a primary index and a set of secondary indices.

18. (Original) The record management system of claim 17, wherein the set of secondary indices for a sub-network that only performs one function is empty.

19. (Original) The record management system of claim 17, wherein each sub-network receives a set of inputs, and each sub-network's primary index is the index derived from a pivot function of the sub-network that depends on all the inputs in the sub-network's set of inputs.

20. (Original) The record management system of claim 17,

wherein when the manager receives a set of indices, the manager searches the data storage structure to find a set of indices that match the received set of indices, and if the manager finds a matching set, the manager retrieves the sub-network identified by the matching set.

21. (Original) The record management system of claim 20,

wherein for each particular index pair formed by the received primary index and one of the received secondary indices,

the manager identifies each sub-network stored in the storage structure that is associated with the particular index pair,

the manager then determines whether any of the identified sub-networks are associated with all the index pairs, and

if so, the manger retrieves any sub-network that is associated with all index pairs.

22. (Previously Presented) The record management system of claim 20, wherein

the data storage structure stores each sub-network in terms of

(i) a graph that represents the topology of the set of circuit elements of each sub-network, wherein the graph includes a node for each circuit element of the sub-network,

(ii) a set of local functions that includes a local function for each node of the graph,

wherein the data storage structure stores, for each sub-network, an identifier that specifies the locations that store the set of local functions and the graph of the sub-network,

wherein each sub-network's set of indices is associated with the identifier for the sub-network.

23. (Original) The record management system of claim 20, wherein each sub-network's identifier includes a graph index and a set of function indices, wherein, for each sub-network, the graph index identifies the storage location of the graph for the sub-network, and each function index identifies the storage location of a local function of the sub-network.

24. (Previously Presented) The record management system of claim 12, wherein at least some sub-networks perform at least three output functions.

25. (Previously Presented) The data storage structure of claim 2, wherein at least some sub-networks perform at least three output functions.